

Application No.: 10/611,931

Docket No.: YOR920020368US1  
20140-00301-US**REMARKS**

Claims 1, 4-8, 14-18 and 20-48 are now in the application. The indication that claims 20-24, 39, 47 and 48 are allowed and that claims 16-18 and 25-26 contain allowable subject matter is hereby noted.

Claims 1, 4-8, 14-18, 20-26, 38, 39 and 43-48 are directed to the elected invention identified by the examiner as Group I. Claims 27-37 and 40-42 are drawn to non-elected inventions and may be cancelled by the examiner upon the allowance of the claims directed to the elected invention.

Claims 1, 4-6, 14, 15-38 were rejected on 35USC102 (b) as being anticipated by US Patent 6,395,607 to Chung. Chung does not anticipate Claims 1, 4-8, 14-18, 20-26, 38 and 39. In particular, Claim 1 recites "selectively depositing on the Cu, one or more materials by electrolytic plating or by electroless plating". Chung fails to disclose selectively depositing on Cu by electrolytic plating or by electroless plating. Chung does not suggest selectively depositing barrier layer 14 on the Cu or fill material. Instead, Chung suggests blanket depositing the barrier layer 14 over the "first barrier layer 6" and to fill the recess. See column 7, lines 49-52.

The conclusion in the office action that since "applicant does not specially define the length and location of the selectively depositing —on the Cu layer, the deposition of the layer 14 shown in Fig. 5 of Chung read as a "selectively depositing" is in error. The claims by reciting "selectively depositing on the Cu" define the location of the plating being only on the Cu layer. The use of "selectively depositing" and similar terms is quite prevalent in the semiconductor technology to refer to depositing on the recited layer and not elsewhere. This is distinguished from blanket depositing which covers the upper surface of a work piece as shown in Figure 5 of Chung. Persons skilled would readily appreciate the metes and bounds of the term "selectively depositing on the Cu" as depositing only on the Cu and not elsewhere. For instance, see US Patent 6,696,758 to Dubin at col. 3, lines 63, 66 & 67 and col. 9, line 29 wherein "selectively" is contrasted to "blanket". This is also consistent with the present disclosure (e.g. see paragraph [0042].

Moreover, the electroless plating recited in the claims is not even remotely suggested. In addition, although Chung alludes to electroplating at column 7, line 22, persons skilled in the art

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appreciate that the barrier materials that were mentioned , titanium, titanium nitride, tantalum, and tantalum nitride, can not be deposited by electroplating.

Chung fails to anticipate the present invention. In particular, anticipation requires the disclosure, in a prior art reference, of each and every recitation as set forth in the claims. See *Titanium Metals Corp. v. Banner*, 227 USPQ 773 (Fed. Cir. 1985), *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 1 USPQ2d 1081 (Fed. Cir. 1986), and *Akzo N.V. v. U.S. International Trade Commissioner*, 1 USPQ2d 1241 (Fed. Cir. 1986).

There must be no difference between the claimed invention and reference disclosure for an anticipation rejection under 35 U.S.C. 102. See *Scripps Clinic and Research Foundation v. Genetech, Inc.*, 18 USPQ2d 1001 (CAFC 1991) and *Studiengesellschaft Kohle GmbH v. Dart Industries*, 220 USPQ 841 (CAFC 1984).

Claim 7 and 8 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,395,607 to Chung in view of U.S. Patent 6,670,274 to Liu et al. The cited references do not render obvious Claim 7 and 8. Liu et al. fail to overcome the above discussed deficiencies of Chung with respect to rendering unpatentable the present invention. Liu et al. was relied upon for a disclosure of using Co as a specific composition for a material layer (22) with TaN layer on a Cu (18). Liu et al. fail to disclose selectively depositing on Cu by electrolytic plating or by electroless plating. In fact, Liu et al. do not even suggest selectively depositing. Accordingly, Claims 7 and 8 are patentable for at least those reasons as to why claim 1, as amended, is patentable.

Claims 43-46 were rejected under 35USC103 (a) as being unpatentable over Chung in view of US Patent 6,696,758 to Dubin et al. Dubin et al. fail to overcome the above discussed deficiencies of Chung with respect to rendering unpatentable the present invention. Dubin et al were relied upon for teaching using Co and Ru as specific compositions for material layers on a Cu. Dubin et al. fail to disclose selectively depositing on Cu by electrolytic plating or by electroless plating. In fact Dubin et al. do not even suggest selectively depositing. Accordingly, Claims 43-46 are patentable for at least those reasons as to why claim 1, as amended, is patentable.

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In view of the above, consideration and allowance are, therefore, respectfully solicited.

In the event the Examiner believes an interview might serve to advance the prosecution of this application in any way, the undersigned attorney is available at the telephone number noted below.

Please charge any required fees to Deposit Account 22-0185.

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Respectfully submitted,

By 

Burton A. Amernick

Registration No.: 24,852

CONNOLLY BOVE LODGE &amp; HUTZ LLP

1990 M Street, N.W., Suite 800

Washington, DC 20036-3425

(202) 331-7111

(202) 293-6229 (Fax)

Attorney for Applicant